

*** AGENDA ***

**NASA Biodiversity and Ecological Conservation Team Meeting
May 8-9, 2023**

Location: The Hotel, University of Maryland

Monday, May 8

8:30AM Coffee/Tea

9:00AM **Welcome and Introduction**
[Code of Conduct](#) Review
Woody Turner/NASA Headquarters

9:15AM **Project Talks – 5 minute lightning talks + 2 min transition**

Transcriptomics From Space: Linking Remote Sensing to Tree Gene Expression in a Diverse Set of Species Through the Growing Season and in Response to Water Deficit
Nathan Swenson/Notre Dame University

Ecological forecasting tools for movement-track management at the Yukon-to-Yellowstone migration corridor
Gil Bohrer/Ohio State University

From pixels to penguins: analyzing long-term Adélie colony dynamics using Landsat imagery
Carole Hall/Stonybrook University

Advancing tools to support and test an integrated biodiversity monitoring system for Colombia's Protected Areas
Victor Gutierrez-Velez/Temple University

Integrating remote sensing and ecological forecasting into decision support for beaver rewilding
Nick Kolarik/Boise State University

Near-Real-time Forecasting and Change Detection for a Fire-Prone Shrubland Ecosystem
Adam Wilson/State University of New York, Buffalo

Multiple spatial scales, long-term trends, and synchrony of the dynamic habitat indices and bird populations
Volker Radeloff/University of Wisconsin, Madison

Predicting the Long-Distance Dispersal of Ichthyoplankton in the Intra-Americas Sea: A Data-Assimilative Decision Support Tool for Effective Living Marine Resource Management
Taylor Shropshire/ Fathom Science LLC

10:15AM **Break (30 min)**

10:45AM **Project Talks – 5 minute lightning talks + 2 min. transition**

Prediction of Individual Coral Organismal Growth, Recruitment, And Mortality (PICOGRAM)
Ana Tarano/University of Miami

BioCube: Integrating remote sensing and in-situ dimensions of biodiversity to understand plant and animal community composition and dynamics at large scales
Ryan Pavlick/NASA Jet Propulsion Laboratory

Enhancing biodiversity conservation and ecosystem resilience in dry forest ecosystems
Marcus Peery/University of Wisconsin, Madison

Multi-sensor biodiversity framework developed from bioacoustic and space-based sensor platforms
Bryan Pijanowski/Purdue University

Natural Resource Management with New Protected Area Connectivity Tools
Patrick Jantz/Northern Arizona University

Understanding the global 3D signature of tree biodiversity
Atticus Stovall/University of Maryland, College Park

Understanding seed dispersers movements and their consequences across rainforest gradients of structural and phenological diversity
Antonio Ferraz/University of California, Los Angeles and JPL

Archipelago-wide rewilding of Galapagos giant tortoises
James Gibbs/State University of New York, Syracuse

11:45AM **Lunch (1h 45m)**

1:30PM **Project talks - 5 minute lightning talks + 2 min. transition**

Full annual cycle conservation of migratory birds in the Western Hemisphere

Jill Deppe/National Audubon Society

Scaling forest diversity across space and time in a non-equilibrial world
Sydne Record/University of Maine

Biodiversity, connectivity, and ecological forecasting: applying NASA earth observation data to conservation management in the Greater Kruger National Park region, South Africa
David Bunn/Colorado State University

Adding space-based vegetation structure measurements to a global ecosystem model to simulate tropical forest animal communities and their role in ecosystem function
Christopher Doughty/Northern Arizona University

Projecting the Spread of Aquatic Invasive Species Using Remote Sensing, Genetics, and Climate Modeling
Gordon Luikart/University of Montana, Missoula

Mapping changes in forest diversity and disease in North American temperate forests
J. Antonio Guzmán Q./University of Minnesota

Act Green: A near-real time integrated mapping and reporting system for re-wilding efforts: applying, extending and enhancing an application for tigers (*Panthera tigris*) to lions (*Panthera leo*), jaguars (*Panthera onca*), and American bison (*Bison bison*)
Haqiq Rahmani/Wildlife Conservation Society

Functional ecology in the SBG era: An assessment of the state of plant trait retrieval from imaging spectroscopy
Alexey Shiklomanov/NASA Goddard Space Flight Center

2:30PM

Project Talks - 5 minute lightning talks + 2 min. transition

Aeroecology, an emerging ecological frontier for addressing modern conservation challenges
Kyle Horton/Colorado State University

Multiscale Investigation of Microbial Biodiversity in Trans-Atlantic Dust Plumes
Hosein Foroutan/Virginia Polytechnic Institute and State University

Louisiana Deltaic Estuaries MBON: Sea Level Rise Sentinels
Cassandra Glaspie/Louisiana State University

The Southeast US Marine Biodiversity Observation Network (MBON):
Toward Operational Marine Life Data for Conservation and Sustainability
Frank Mueller-Karger/University of South Florida

Assessing spatial biodiversity dynamics in kelp forest ecosystems using
spaceborne remote sensing
Tom Bell/ University of California, Santa Barbara

Hot spots in the ice: importance of polynyas for marine ecosystems
Alice DuVivier/UCAR

Identifying coral refugia from observationally weighted climate model
ensembles
Peter Kalmus/NASA JPL

The University of Connecticut Ecological Modeling Institute Biodiversity
Exposure Forecasts (BEFore): Anticipating Ecological Vulnerability to
Global Change
Cory Merow/University of Connecticut

3:30PM **Break (30m)**

4:00PM **Tribal engagement panel**
Moderated discussion around the following topics: relevant activities or
initiatives at NASA; best practices for engagement and co-production;
open science/data sovereignty
James Rattling Leaf/ Wolakota Lab, LLC
Sativa Cruz/NASA Indigenous Peoples Initiative
Steve Crawford/ NASA Open Source Science Initiative
Rebecca Hill/ US Forest Service Tribal Relations

5:00PM **Adjourn**

Tuesday May 9

8:30AM Coffee/Tea

9:00AM **Project Talks: BioSCape (5 min + 1 for transition)**

Project overview
Adam Wilson/University at Buffalo

Intrinsic dimensionality and data fusion to monitor Cape biodiversity
Phil Townsend/University of Wisconsin, Madison

BIOScape - Mapping of phytoplankton functional types from space in support of coastal resource management and decision support activities
Jinghui Wu/Columbia University

BioSoundSCape: Connecting acoustics and remote sensing to study habitat-animal diversity across environmental gradients
Matthew Clark/Sonoma State University

RadSCape: radiative transfer simulation and validation of the dynamic structural and spectral properties of the vegetation of the Cape
Jan van Aardt, presented by Adam Wilson/University at Buffalo

CapeTraits: Patterns of functional trait variation and diversity across the Greater Cape Floristic Region and comparison with other Mediterranean ecosystems
Phil Townsend/University of Wisconsin, Madison

BioREaCH: Biodiversity-Remote sensing for Estuarine and Coastal Habitat research
Anthony Campbell/NASA Goddard Space Flight Center

Integrating remote sensing and biodiversity observations to map and monitor plant taxonomic, phylogenetic, and functional beta-diversity in the Greater Cape Floristic Region
Matthew Fitzpatrick/University of Maryland, Cambridge

TraitsCape: Understanding the role of microrefugia in buffering fynbos from global change
Cory Merow/University of Connecticut, Storrs

Spectral and Spatial Scaling in Biodiversity Remote Sensing: Research Conducive to BioSCape Science and Implementation Activities
John Silander/University of Connecticut, Storrs

Impacts of invasive alien species on biodiversity and ecosystem functioning

Ben Poulter/NASA Goddard Space Flight Center

Plant community assembly and trait evolution in the South African Greater Cape Floristic Region

Jeannine Cavendar-Bares/University of Minnesota

Cyanobacteria and Surface aquatic vegetation of the Cape freshwater systems (CyanoSCape): A Hyperspectral Data Campaign and Analysis

Liane Guild/NASA Ames Research Center

10:30AM **Break (30 min)**

11:00AM **FINESST speed talks (30 min)**

Jenna Keany/Northern Arizona University

Fernando Romero-Galvan/Cornell University

Natalie Queally/University of Wisconsin, Madison

Andrew Jablonski/University of Virginia

Natalia Rogova/University of Wisconsin

Jenny Linscott/University of South Carolina

Yilun Zhao/University of Illinois, Urbana-Champaign

11:30PM **Lunch - Mentor Lunch / Early Career Lunch (1.5 hrs)**

1:00 PM **Project Talks (5 min + 2 for transition)**

Earth Observations for Climate-Ready Aquaculture Management and Siting to Improve Food Security and Ocean Health in Palau, a Small Island Developing State

Robert Jones/The Nature Conservancy

Soilborne plant pathogen dispersal and assessment: Building a remote sensing-based global surveillance system for plant disease

Kaitlin Gold/Cornell University

Leveraging multiscale airborne and spaceborne imaging spectroscopy to monitor grassland plant diversity under different management practices

Hamed Ghlozideh/Oklahoma State University

Ocean color remote sensing of zooplankton: detecting swarms of *Calanus* in the western North Atlantic

Catherine Mitchell/Bigelow Laboratory for Ocean Sciences

Modeling Endangered Species' Forest Habitats, And Updating Forest Land Use Plans in Argentina In Support of the UN Sustainable Development Goals

Volker Radeloff/University of Wisconsin, Madison

The power of GEDI: Investigate the efficacy of spaceborne Lidar to model biodiversity and characterize habitat heterogeneity at the continental and global scales

Qiongyu Huang/Smithsonian Institution

MarineVERSE - The Marine Biodiversity and Scaling Project

Sam Purkis/University of Miami

1:50PM

Research Results Portal

Megan McGroddy/NASA Goddard Space Flight Center

2:00 PM

New Missions (10 mins + 4 mins Q&A)

EMIT (Earth Surface Mineral Dust Source Investigation)

Dana Chadwick/NASA Jet Propulsion Laboratory

NISAR (NASA-ISRO Synthetic Aperture Radar)

Kyle McDonald/NASA Jet Propulsion Laboratory & City Univ. of NY

PACE (Plankton, Aerosol, Cloud, ocean Ecosystem)

Antonio Mannino/NASA Goddard Space Flight Center

GLIMR (Geosynchronous Littoral Imaging and Monitoring Radiometer)

Antonio Mannino/NASA Goddard Space Flight Center

SBG (Surface Biology and Geology)

Ryan Pavlick/NASA Jet Propulsion Laboratory

Landsat Next

Chris Neigh/NASA Goddard Space Flight Center

3:15PM

Break (30 min)

3:45PM

Communications

Hands-on activity

NASA Applied Sciences Program Communications Teams

4:45PM

Closing Remarks

Keith Gaddis/NASA Headquarters

5:15PM

Adjourn